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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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07/13/2001

Yoshiharu Doi

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07/13/2004

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EXAMINER

PEREZ, ANGELICA

ART UNIT

PAPER NUMBER

2684

10

DATE MAILED: 07/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/905,131

Applicant(s)

DOI, YOSHIHARU

Examiner

Angelica M. Perez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on April 22, 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6 . 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Arguments***

1. Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection. Updated search.

***Claim Rejections - 35 USC § 101***

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 9 –12 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Regarding claim 9, since a computer program is merely a set of instructions capable of being executed by a computer, the computer program itself is not a process and without the computer-readable medium needed to realize the computer program's functionality, nonstatutory functional descriptive material (see MPEP 2105).

Claims 10 – 12 are rejected for at least those reasons recited for independent claim 9.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akaiwa (Akaiwa et al.; US Patent No.: 5,710,995) in view of Kirisawa (Kirisawa, Akihiro; US Patent No.: 6,297,780 B1).

Regarding claims 1 and 5, Akaiwa teaches of a mobile communication terminal and method (column 1, lines 42-64; e.g., steps describe a method of the invention) for performing reception and transmission (figure 1) using an adaptive array method (column 4, lines 66-67 and column 5, lines 1-2), the mobile communication terminal being provided with (a) a plurality of antennas (figure 1, items 11 and 12 and column 4, lines 9-12), (b) reception means for forming a directivity pattern for receiving a desired reception signal and receiving the reception signal using the formed directivity pattern (column 1, lines 50-64), the mobile communication terminal comprising: detection mean for detecting a reception error in the reception signal (figure 1, items 15 and 16; columns 3 and 4, lines 56-63 and 5-13, respectively).

Akaiwa does not specifically teach of transmission means for transmitting a transmission signal using the directivity pattern formed in reception; and transmission control means for controlling the transmission means when the detection means detects the reception error so that a pattern different from the directivity pattern formed in reception is formed and the transmission signal is transmitted in the formed pattern.

In related art concerning a mobile apparatus with plurality of antennas having different directivities, Kirisawa teaches of transmission means for

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transmitting a transmission signal using the directivity pattern formed in reception (column 1, lines 51-62); and transmission control means for controlling the transmission means when the detection means detects the reception error so that a pattern different from the directivity pattern formed in reception is formed and the transmission signal is transmitted in the formed pattern (column 1, lines 60-62; where the transmitted signal is different from the received pattern).

It would have been obvious to a one of ordinary skill in the art at the time the invention was made to combine Akaiwa's mobile communication terminal for performing reception using an adaptive array method with Kirisawa's transmission control means in order to increase the likelihood of the transmitted signal to reach its destination, as taught by Kirisawa.

Regarding claims 2 and 6, Akaiwa in view of Kirisawa teaches all the limitations according to claims 1 and 5, respectively. In addition, Akaiwa teaches where when the detection means detects the reception error (figure 1, items 15 and 16; columns 3 and 4, lines 56-63 and 5-13, respectively). Kirisawa further teaches where the transmission control means controls the transmission means so that the non-directional pattern is formed using one of the plurality of antennas (column 4, lines 15-16; where the antenna with the "smallest reflected power" has the "highest power strength"), and the transmission signal is transmitted in the non-directional pattern (column 4, lines 15-16; e.g., a single antenna is selected which corresponds to a "non-directional pattern").

Regarding claims 3 and 7, Akaiwa in view of Kirisawa teaches all the limitations according to claims 2 and 6, respectively. In addition, Akaiwa teaches

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where when the detection means detects the reception error (figure 1, items 15 and 16; columns 3 and 4, lines 56-63 and 5-13, respectively). Kirisawa further teaches where the transmission control means controls the transmission means so that the non-directional pattern is formed using one of the plurality of antennas that has the largest antenna gain, and the transmission signal is transmitted in the non-directional pattern (column 3, lines 1-5 and lines 62-64; where the "largest antenna gain" is inherent in a "smaller reflected power").

Regarding claims 4 and 8, Akaiwa in view of Kirisawa teaches all the limitations according to claims 2 and 6, respectively. Akaiwa further teaches where the communication terminal further includes selection means for measuring a quality of the reception signal for each of the plurality of antennas and selecting an antenna with the highest reception quality (column 1, line 58-64; e.g., "signal quality monitor circuit"), where when the detection means detects the reception error (figure 1, items 15 and 16; columns 3 and 4, lines 56-63 and 5-13, respectively), the transmission control means controls the transmission means so that the non-directional pattern is formed using the antenna selected by the selection means, and the transmission signal is transmitted in the non-directional pattern (column 1, lines 61-64; where the "corrected signal" corresponding to "directional" or "diversity signal" corresponding to non-directional" is outputted in response to quality).

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4. Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akaiwa in view of Kirisawa as applied to claims 1-4 above, and further in view of Keirinbou (Keirinbou, Hisashi; US Patent No.: 6,285,893 B1).

Regarding claim 9, Akaiwa in view of Kirisawa teaches of a mobile communication terminal for performing reception and transmission (figure 1) using an adaptive array method (column 4, lines 66-67 and column 5, lines 1-2), the mobile communication terminal being provided with (a) a plurality of antennas (figure 1, items 11 and 12 and column 4, lines 9-12), (b) reception means for forming a directivity pattern for receiving a desired reception signal and receiving the reception signal using the formed directivity pattern (column 1, lines 50-64), the mobile communication terminal comprising: detection mean for detecting a reception error in the reception signal (figure 1, items 15 and 16; columns 3 and 4, lines 56-63 and 5-13, respectively). Kirisawa teaches of transmission means for transmitting a transmission signal using the directivity pattern formed in reception (column 1, lines 51-62); and transmission control means for controlling the transmission means when the detection means detects the reception error so that a pattern different from the directivity pattern formed in reception is formed and the transmission signal is transmitted in the formed pattern (column 1, lines 60-62; where the transmitted signal is different from the received pattern).

Akaiwa in view of Kirisawa does not teach of a program to be executed by a computer in a mobile communication terminal for performing the method described.

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In related art concerning a portable radio device equipped with a plurality of antennas, Keirinbou teaches of a program to be executed by a computer in a mobile communication terminal for performing the method described (column 4, lines 7- 11).

It would have been obvious to a one of ordinary skill in the art at the time the invention was made to combine Akaiwa's mobile communication terminal for performing reception using an adaptive array method and Kirisawa's transmission control means with Keirinbou's program in order to facilitate the operation of the method in a centralized unit and to provide the means to adapt the method to necessary changes, Keirinbou.

Regarding claim 10, Akaiwa in view of Kirisawa and further in view of Keirinbou teaches all the limitations according to claim 9. In addition, Akaiwa teaches where when the detection means detects the reception error (figure 1, items 15 and 16; columns 3 and 4, lines 56-63 and 5-13, respectively). Kirisawa further teaches where the transmission control means controls the transmission means so that the non-directional pattern is formed using one of the plurality of antennas (column 4, lines 15-16; where the antenna with the "smallest reflected power" has the "highest power strength"), and the transmission signal is transmitted in the non-directional pattern (column 4, lines 15-16; e.g., a single antenna is selected which corresponds to a "non-directional pattern").

Regarding claim 11, Akaiwa in view of Kirisawa and further in view of Keirinbou teaches all the limitations according to claim 10. In addition, Akaiwa teaches where when the detection means detects the reception error (figure 1,



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items 15 and 16; columns 3 and 4, lines 56-63 and 5-13, respectively). Kirisawa further teaches where the transmission control means controls the transmission means so that the non-directional pattern is formed using one of the plurality of antennas that has the largest antenna gain, and the transmission signal is transmitted in the non-directional pattern (column 3, lines 1-5 and lines 62-64; where the "largest antenna gain" is inherent in a "smaller reflected power").

Regarding claim 12, Akaiwa in view of Kirisawa and further in view of Keirinbou teaches all the limitations according to claim 10. Akaiwa further teaches where the communication terminal further includes selection means for measuring a quality of the reception signal for each of the plurality of antennas and selecting an antenna with the highest reception quality (column 1, line 58-64; e.g., "signal quality monitor circuit"), where when the detection means detects the reception error (figure 1, items 15 and 16; columns 3 and 4, lines 56-63 and 5-13, respectively), the transmission control means controls the transmission means so that the non-directional pattern is formed using the antenna selected by the selection means, and the transmission signal is transmitted in the non-directional pattern (column 1, lines 61-64; where the "corrected signal" corresponding to "directional" or "diversity signal" corresponding to non-directional" is outputted in response to quality).

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**Conclusion**

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US Patent No.: 6,449,469 B1; deals with switched directional antenna for automotive radio receivers.

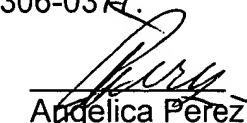
US Patent No.: 5,867,792; refers to a communication device with adaptive antenna.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Angelica Perez whose telephone number is 703-305-8724. The examiner can normally be reached on 7:15 a.m. - 3:55 p.m., Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on 703-308-7745. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2600's customer service number is 703-306-0377.

  
Angelica Perez  
(Examiner)  
July 6, 2004

  
NAY MAUNG  
SUPERVISORY PATENT EXAMINER

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